

MEIOTIC AND MITOTIC CHROMOSOME NUMBERS FOR *MENTZELIA LEUCOPHYLLA* BRANDEGEE (LOASACEAE)

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ABSTRACT

Meiotic and mitotic chromosome numbers for *Mentzelia leucophylla* Brandegee (Loasaceae) are reported. The numbers of $n = 11$ and $2n=22$ fit with the aneuploid series that exists in other taxa of *Mentzelia* section *Bartonia*, but differ from a chromosome number of $n = 18$ reported in 1973 by Reveal & Styer. Although additional work should be done on the species, it is suggested that the 1973 count may be in error.

Key Words: Loasaceae section *Bartonia*, *Mentzelia leucophylla*, meiotic chromosome numbers, mitotic chromosome numbers.

A recent report of a new species of *Mentzelia* (Thompson and Prigge 2004) also lists chromosome numbers and morphological characteristics of other species in section *Bartonia* (Loasaceae) from California and Nevada. It is clear from Table 1 of that paper that the reported chromosome number of $n = 18$ for *M. leucophylla* (Reveal & Styer 1973) does not fit with the aneuploid series that exists in section *Bartonia*. In a footnote in Table 1, it is stated that this count needs to be checked. As a matter of fact, relevant chromosome counts of this species have been made, but not published. These counts were inadvertently omitted from Table 1. In 1969, at the University of California, Los Angeles, meiotic counts of $n = 11$ were obtained from *M. leucophylla* by H. J. Thompson. The plants analyzed were grown from seeds taken from a herbarium specimen (Reveal 1484, 0.4 mi nw of Ash Meadows Road on road to Crystal Pool, 4 Jul 1968, Nye

County, Nevada). In addition, in 1987, at the University of Louisville, I germinated seeds collected from six plants of *M. leucophylla* at the type locality in Ash Meadows. I observed mitotic chromosome numbers of $2n=22$ in root tip cells of each plant, confirming the unpublished counts of H. J. Thompson. Although additional work should be done on the species, these data suggest that the original count of $n = 18$ for *M. leucophylla*, may be in error.

LITERATURE CITED

- REVEAL, J. L. AND E. L. STYER. 1973. Miscellaneous chromosome counts of western American plants. II. Great Basin Naturalist 33:19–25.
THOMPSON, H. J. AND B. A. PRIGGE. 2004. A new species of *Mentzelia* section *Bartonia* (Loasaceae) from the Great Basin Desert of California and Nevada. Madroño 51:379–383.

NOTEWORTHY COLLECTIONS

CALIFORNIA

PENSTEMON PAHUTENSIS N. Holmgren (SCROPHULARIACEAE).—Inyo Co., Grapevine Mountains, Death Valley National Park, UTM Zone 11 487661E 4088993N (NAD 83), in pinyon-juniper woodland at wash bottom, 13 June 2001, Brian Knaus 14 (RSA); Inyo Co., Grapevine Mountains, Death Valley National Park, UTM Zone 11 487873E 4089066N (NAD83), in pinyon-juniper woodland at wash bottom, 13 June 2001, Brian Knaus 15 (DEVA). Associated with *Pinus monophylla*, *Artemisia tridentata* ssp. *vaseyanus*, *Chrysothamnus viscidiflorus* ssp. *viscidiflorus*, *Ephedra viridis*, *Purshia tridentata* var. *glandulosa*, *Achnatherum hymenoides*, *Cryptantha flavoculata*, and *Phacelia tanacetifolia*.

Previous knowledge. This species was originally described in 1971 as occurring commonly at Pahute Mesa and Rainier Mesa in south-central Nye County, NV (N. H. Holmgren 1971, Alico 7:351–356). The Jepson Manual (Hickman 1993) indicates that *P. pahutensis* also occurs in the Grapevine Mountains, a range located in eastern

Inyo County, California, and western Nye county, Nevada (the state line bifurcates the range near its crest). It is notable that the “Von Schmidt Line,” a historical state boundary, lies easterly and parallel to the current state boundary in this region. The Grapevine Mountains are currently contained within Death Valley National Park.

On June 9, 1891, F.V. Coville and F. Funston 1759 (NY, digital image!) collected “*Penstemon glaber* Pursh.” at “Wood Cañon, Grapevine Mountains, California.” Noel Holmgren subsequently annotated this specimen as *P. pahutensis*. To this author’s knowledge there is currently no canyon in the Grapevine Mountains known as “Wood Canyon.” Coville’s account (1893, Contributions from the U. S. National Herbarium 4) states that Mr. Funston was engaged in a trip across Death Valley to Grapevine Peak, and back to Keeler, CA during the period May 23 to June 15. (From May 24 to June 10, Coville stayed in Keeler.) Although Coville states that Mr. Funston returned by the same route (1893, Contributions from the U. S. National Herbarium 4: 7), the map in this volume

includes two paths from Death Valley to the ridgeline of the Grapevine Mountains. Both of these routes are north of Boundary Canyon, where Nevada State Highway 374 currently traverses the Grapevine Mountains. Perhaps these two routes included Titus Canyon and Fall Canyon, but no place names are given. On June 12, 1891, *Pinus flexilis* James was collected at the summit of the peak of Grapevine Mountain (Coville & Finstou 1767), suggesting that the *Penstemon* collection was made during the ascent towards the ridge from the California side, or along the ridge in Nevada. This collection may represent the first collection of *P. pahutensis* in California but the location of this collection is ambiguous due to its close proximity to the California/Nevada boundary and the lack of detail in Coville's report.

On June 23, 1935, M. F. Gilman 1804 (NY, digital image!) collected "*Penstemon speciosus* Dougl." at "Inyo County: Head of Titus Canyon, Grapevine Mts., Death Valley, at 2135 m (7000 ft) elevation." Noel Holmgren also annotated this specimen as *P. pahutensis*. While Titus Canyon is currently a popular tourist destination in Death Valley National Park, it is uncertain whether this site was indeed inside California. The elevation suggests that the collection occurred just outside California in Nye County, Nevada. Gilman 3213 (DEVA) also collected *Penstemon speciosus* from Grapevine Mine at 6500 feet elevation (Dana York, Death Valley National Park Botanist, personal communication). Grapevine Mine is located on the Nevada side of the Grapevine Mountains. I have not seen this specimen and it is unknown whether it should also be annotated to *P. pahutensis*.

Additional collections (G. E. Lyon, 217, 218, 234, 235, 236, 237, DEVA!) were made in 1994 from the Grapevine Mountains as part of a study questioning the validity of this species. These collections were labeled as having been collected from Inyo County, CA. However, the site descriptions, UTM coordinates, and the maps that were submitted with the collections (assumedly provided by G. E. Lyon and available at the Death Valley National Park Museum Library) clearly show them to have been collected from Nye County, NV.

Significance. These collections confirm the occurrence of *Penstemon pahutensis* in the State of California. Several historical specimens suggested its presence within the state but the exact location of their collection is ambiguous. While there have previously been collections in Nye County, NV and the distribution could have been expected to extend into California, there was no validation. The remote location and lack of roads to this area have thus far prevented confirmation. Though it was recently removed from the California Native Plant Society's Inventory of Rare and Endangered Plants (sixth edition, 2001) due to lack of evidence for its occurrence in the state, this collection of *Penstemon pahutensis* indicates it should be included in the next edition.

This collection emphasizes the lack of botanical information we possess for the California–Nevada desert regions. These areas are rich in local endemics due to many factors including their diverse topographic, hydrologic and

edaphic features. Recent collections have highlighted the fact that even common species (Pritchett *et al.* 2001, Madroño 48: 43) have gone undetected until very recently. The largest risk to these desert communities are land management decisions, such as the nearby Yucca Mountain nuclear waste storage facility, being made on a paucity of information for the region. This lack of information is frequently based not on lack of knowledge (existing in the literature as well as in herbaria), but results from the lack of botanists going out there to look and confirm, as I believe this collection illustrates.

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CALIFORNIA

COTONEASTER SIMONSSII Baker (ROSACEAE).—Del Norte Co., adventive in thickets, Route 199, Hiouchi, elev. 40 m, 18 May 2004, P. F. Zika 19638 (UC, WTU); spread from cultivation to thickets, near airport, Gasquet, elev. 40 m, 18 May 2004, P. F. Zika 19639 (UC, WTU).

Previous knowledge. Native to the Himalayas, Himalayan cotoneaster is a occasional escape from cultivation on the coast of Oregon and Washington. It is a winter deciduous shrub, and thus easily distinguished from the other three naturalized species in California, which are evergreen (Hrusa *et al.* 2002, Madroño 49: 61–98; Rosatti, T. J. 1993, *Cotoneaster*, In: The Jepson Manual Higher Plants of California, University of California Press, Berkeley, CA). A key to wild members of the genus in California is provided below. These ornamentals are popular for their bright fruits that persist in autumn and winter. The seeds are dispersed by frugivorous birds such as American robins (*Turdus migratorius*) and cedar waxwings (*Bombycilla cedrorum*).

1. Leaves deciduous, lower surface green and sparsely pubescent; anthers cream *C. simonssii*
1. Leaves evergreen, lower surface obscured, densely tomentose; anthers pink
 2. Flowers cupulate, petals pink and erect; styles 2–4, always some flowers with more than 2 styles; always some fruits with more than 2 stones *C. franchetii* Bois
 2. Flowers rotate, petals pure white, spreading; styles 2; fruits with 2 stones
 3. Leaves thin and flat, veins superficial; leaves 10–30 × 10–20 mm wide *C. pannosus* Franch.
 3. Leaves thick, slightly wrinkled with sunken veins; leaves 30–95 × 17–45 mm wide *C. lacteus* W. W. Sm.

Significance. First report as a wild plant in California.

—PETER F. ZIKA, Herbarium, Burke Museum, Box 355325, University of Washington, Seattle, WA 98195-5325.